



F3C5306 Environmental Systems Analysis 7.5 credits

Environmental Systems Analysis

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for F3C5306 valid from Spring 2018

Grading scale

Education cycle

Third cycle

Specific prerequisites

Eligible for third cycle studies.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

Environmental Systems Analysis is a comprehensive and systematic approach to understand, assess and solve the problems created by human activities on the environment and

well-being. It aims at robustly supporting decision-making towards sustainable development. This course provides insights into the suite of quantitative tools that exist for understanding the environmental and social implications of human activities, as well as the appropriateness of the tools to different decision contexts. Furthermore, the course takes an applied focus.

After completing this course, the student should be able to:

- Describe the main characteristics (procedure, type of results, strengths and weaknesses, main applicability) of the most important environmental systems analysis tools, including MFA (Material Flow Analysis), SFA (Substance Flow Analysis), LCA (Life Cycle Assessment), LCC (Life Cycle Costing), EIA (Environmental Impact Assessment), SEA (Strategic Environmental Assessment) and CBA (Cost-Benefit Analysis).
- Describe and explain what types of development trends may be expected in the area of environmental systems analysis.
- Explain and analyze how a specific environmental systems analysis tool or a combined use of two or several tools may contribute to an improved decision-making in a specific decision situation.
- Demonstrate an ability to cooperate in a group task work and together with other students produce a joint report of good quality with respect to formal issues, facts content and analysis.

Course contents

Decision-making theory and environmental decision-making; Systems theory, systems thinking and systems analysis.

The ESA toolbox includes: strategic environmental assessment, environmental impact assessment, life cycle sustainability assessment, material flow analysis, cost-benefit analysis, technology assessment, integrated assessment, position analysis, multi-criteria decision analysis, integrated assessment models.

Course literature

Will be announced on the course homepage in advance of the course start.

Examination

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.